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Christa M. Thorpe

Applicant	: William B. Goldsworthy, et al.	Confirmation No. 3292
Application No.	: 10/037,814	
Filed	: December 28, 2001	
Title	: COMPOSITE REINFORCED ELECTRICAL TRANSMISSION CONDUCTOR	
Grp./Div.	: 2831	
Examiner	: Chau N. Nguyen	
Docket No.	: 52829/CM/G503	

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Post Office Box 7068
Pasadena, CA 91109-7068
July 20, 2005

Commissioner:

Enclosed for filing are the **original and two copies** of Appellant's Brief On Appeal for this application.

__X__ An extension of time to file Appellant's Brief On Appeal is requested, and a Petition for Extension of Time and the applicable fee are enclosed.

__X__ Our check for $250.00 to cover the fee for the appeal brief is enclosed.

_____ An oral hearing of the appeal is requested, and our check for $_, the fee for the oral hearing, is enclosed.

The Commissioner is hereby authorized to charge any further fees under 37 CFR 1.16 and 1.17 which may be required by this paper to Deposit Account No. 03-1728. Please show our docket number with any charge or credit to our Deposit Account. **A copy of this letter is enclosed.**

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

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I. REAL PARTY IN INTEREST

This application is owned by Gift Technologies, LP, as reflected by the Assignment recorded at reel/frame 014902/0890.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-4, 6-12, 19-22, 25, 27 and 29-31 have been finally rejected, and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

A response after Final Action was filed on January 11, 2005, in response to the Final Action mailed on August 21, 2004, and was entered by the Examiner. A further Amendment After Final Action was mailed on June 8, 2005, and has also been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The application has three independent claims, namely claim 1, claim 7, and claim 19. Claim 1 is directed to an electrical current carrying conductor comprising a high tensile strength central load carrying core 10 formed from a plurality of generally arranged component core members 20 which are abutted and which are each generally polygonally shaped in cross-section such that when abutted together define a generally solid cylindrical shaped core 10, as for example, shown in Figures 2 and 3 and described on page 17, line 20 to page 19, line 8. The claim also requires an outer highly conductive electrical current carrying sheath 24, 26, 30 and 32 as for example shown in Figures 2 and 3 and described on page 18, lines 21-23 and on page 18, line 25 to page 19, line 8. The claims also require that the plurality of core members allow for the winding of the conductor around a drum as described on Page 18, lines 7-12.

Independent claim 7 is directed to a method of producing a long distance transmission current carrying conductor comprising bringing a plurality of individual reinforced composite core sections 20 together in abutting relationship to form a generally cylindrical shaped core 10, each core section having a generally polygonally shaped cross-section as for example, shown

in Figures 2 and 3 and described on page 17, line 20 to page 19, line 8. The claim also requires locating on an outer cylindrical shaped surface of the core a highly conductive electrical current carrying conductor 24, 26, 30 and 32 as for example, shown in Figures 2 and 3 and described on page 18, lines 21-23, and on page 18, line 25 to page 19, line 8. The claim further requires winding the conductor around a drum, as for example, disclosed on page 18, lines 7-12.

Independent claim 19 is directed to electrical current carrying conductor having a central load carrying core 10 formed from a plurality of generally arranged component core members 20 which abut each other, and which are generally polygonally shaped in cross-section as for example disclosed in Figures 2, 3 and 4 and described on page 17, line 20 to page 19, line 20. The claim further requires that the conductor is capable of being wound around a drum as for example described on page 18, line 7-12. Moreover, the claim further requires an outer highly conductive electrical current carrying sheath 24, 26, 30 and 32 as for example, shown in Figures 2 and 3 and described on page 18, lines 21-23 and on page 18, line 25 to page 19, line 8. Moreover, claim 19 requires a central bore 36 extending axially through the core 10 as for example, shown in Figure 4 and described on page 19, line 15-20. The claim also requires a fiber optic cable 38 extending through the central bore 36 as for example, shown in Figure 4 and described on page 19, lines 12-20.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4, 6-11, 25, 29 and 30 were rejected under 35 USC §103(a) as being unpatentable over Voser, U.S. Patent No. 4,449,012 in view of Yonechi et al., U.S. Patent No. 4,966,434. The issue is whether the claimed subject matter would have been obvious to one of ordinary skill in the art at the time of the invention in view of these references.

Moreover, claims 12, 19-22, 27 and 31 were rejected under 35, USC §103(a) as being unpatentable over Voser in view of Yonechi et al. as applied to claim 1 and further in view of Nakagomi, et al. U.S. Patent No. 4,422,718. The issue here is also whether the claimed subject matter would have been obvious to one of ordinary skill in the art at the time of the invention in view of these references.

VII. ARGUMENT

The Examiner's rejection of claims 1-4, 6-11, 12, 14-22, 25-27, and 29-31 should be reversed.

The Examiner's rejection to claims 1-4, 6-11, 25, 29 and 30 under 35 USC §103(a) as being unpatentable over Voser in view of Yonechi et al., and the Examiner's rejection of claims 12, 19-22, 27 and 31 under 35 USC §103(a) as being unpatentable over Voser in view of Yonechi et al. as applied to claim 1 in further review of Nakagomi et al., as set forth in the Final Action mailed on October 21, 2004 (the "Final Action"), should be reversed. According to the Examiner, on pages 3 and 4, paragraphs 4 and 5, of the Final Action, Voser discloses all of the features claimed in claims 1-4, 6-11, 25, 29 and 30 including a load carrying core (36, 41 as shown in Figures 5 and

6) formed from a fiber reinforced composite material with the exception that it does not disclose that the core is formed from a plurality of generally arranged component core members which abut together and which are each generally polygonally shaped in cross section and when abutted together define a generally solid cylindrical shaped core. Yonechi et al. according to the Examiner, discloses a cable comprising a tensile strength central load carrying core formed from a plurality of generally arranged component core members which abut together and which are each generally polygonally shaped in cross section and when abutted together define a generally solid cylindrical shaped core. Consequently, the Examiner concluded that it would have been obvious to one of ordinary skill in the art to modify the core of Voser, according to the teachings of Yonechi et al., forming a core by plurality of core members, such that the tension applied to the current carrying sheath is not increased when the cable is stretched.

As to claims 12, 19-22, 27-31, the Examiner, as set forth on page 5, paragraph 5 of the Final Action, is of the opinion that the combination of Voser, Yonechi et al. discloses the invention substantially as claimed except for a fiber optic cable extending through the central core. Nakagomi et al., according to the Examiner discloses a cable comprising a fiber optic cable extending through a central core. Consequently, the Examiner concluded that it would have been obvious to one skilled in the art to apply the teachings to Nakagomi et al. in the cable of Voser such as providing a fiber optic cable which extends through the modified central core of Voser to provide a composite conductor.

To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d. 488, 20 USPQ2d 1438 (Fed. Circ. 1991). See also MPEP 2143.

Voser discloses a double overhead tension bearing telephone cable which is substantially unextensible. Fiber bundles (i.e., the alleged core member) incorporated in the disclosed cable are fixed relative to each other and to metal wires incorporated in the cable. The fiber bundles are prevented from shifting toward the conductor axis when under tensile load. This is confirmed on Column 3, Lines 26-43, of Voser where it is stated that:

> According to the invention, this purpose is achieved with an overhead cable of the type in question wherein the load-bearing means are formed by one or more fiber bundles running in parallel to the metal wires and being stranded therewith and consisting of substantially unextensible artificial fibers, the individual fiber bundles being of such consistency and cross-sectional

> shape and being arranged within the conductors in such a manner that in the individual conductors, the fiber bundles and metal wires surrounded by the appertaining protective cover mutually fix each other in their respective positions thereby preventing any cable-extension-causing cross-shift of the stranded and therefore helically running fibers or fiber bundles towards the conductor axis under tensile load on the cable, so that each individual conductor and therefore also the whole cable is in spite of said helical run of the fiber bundles substantially unextensible.(Emphasis Added).

This is further confirmed by the statement on Column 3, Lines 6-15 of Voser that:

> merely replacing the steel wires in the overhead cable of the type in question by bundles of synthetic fibers as done in the prior art is the loss of stretch-resistance, and since resistance to stretching is one of the main requirements of an overhead cable, it is impossible, in the case of known overhead cable, to replace the steel wires with high strength synthetic fibers, . . .

Yonechi et al. on the other hand teaches an optical fiber cable having a cushioning member defining a core such that the core shrinks in the radial direction when subjected to a tensile load. In column 3, lines 11-14, Yonechi et al. teaches that "[t]he cushioning member 22 is made of a material which, upon stretching of the core 2, permits the filaments to move in the radial direction and thus the radius of the core to reduce." In the exemplary embodiment shown in Figures 3 and 4, the core of Yonechi is formed from a plurality of generally arranged component core members which stretch and shrink in a radially direction when exposed to tensile load. In other words, the core of Yonechi stretches and reduces in thickness in a radial direction when under tensile load. Thus, the core of Yonechi et al. does not provide any significant resistance to stretching.

Consequently, one skilled in the art reading the cited references would not incorporate the core of Yonechi et al. to the cable disclosed in Voser, as suggested by the Examiner since doing so would undermine the teachings of Voser. Specifically, doing so would not prevent, but promote, the stretching of the Voser cable, contrary to the teachings of Voser. Furthermore, doing so will not prevent the shifting of core members toward the conductor axis i.e., the central axis of the Voser cable, but promote such shifting. Consequently, there is no reasonable expectation of success when combining Voser and Yonechi as suggested by the Examiner, nor is there a teaching or suggestion to make the claimed combination as suggested by the Examiner. Thus, the Examiner has not met the first two criteria for making a *prima facie* case of obviousness in rejecting claims 1-4, 6-11, 25, 29 and 30 over Voser in view of Yonechi et al.

Moreover, on Column 3, lines 26-43, Voser specifically teaches that the members forming the disclosed cable are fixed to each other to achieve the objective of the disclosed invention. Thus, one skilled in the art would not incorporate the teachings of Yonechi et al., i.e., the use of component core member which are able to move relative to each other, with the teachings of Voser, as suggested by the Examiner, because such combination will also be contrary to the teachings of Voser. Thus, for this additional reason, there is no suggestion or motivation for Voser and Yonechi et al. to be combined as suggested by the Examiner and there is no reasonable expectation of success. As such, the Examiner again has not met the first and second criteria required to establish a *prima facie* case of obviousness.

Consequently, the Examiner's obviousness in rejection to claims 1-4, 6-11, 25, 29 and 30 over Voser in view Yonechi et al. and to claims 12, 19-22, 27 and 31 as being obvious over Voser in view of Yonechi et al. as applied to claim 1 in further review of Nakagomi et al., should be reversed.

The rejection to claims 4 and 22 over Voser in view of Yonechi et al. and over Voser in view of Yonechi and Nakagomi et al. should be reversed

Claims 4 and 22 are directed to an electrical current carrying conductor comprising a plurality of component core members which are capable of being separated from one another for purposes of splicing. Neither Voser, nor Yonechi et al., nor Nakagomi et al. disclose, teach or suggest an electrical current carrying conductor comprising a plurality of component

core members which are capable of being separated from each other for purposes of splicing. As such, in combining these references, the third criteria for a *prima facie* case of obviousness, i.e., that the prior art references must teach all the claim limitations, has not been met by the Examiner. Consequently, the rejections to claims 4 and 22 as being obvious over Voser in view of Yonechi et al. should also be reversed.

CONCLUSION

There is no motivation provided by either Voser or Yonechi et al. to be combined as suggested by the Examiner in rejecting claims 1-4, 6-12, 19-22, 25, 27 and 29-31. Moreover, since neither of the cited references disclose the subject matter claimed in claims 4 and 22, the combination of these references cannot render such claims obvious. Accordingly, the rejections to claims 1-4, 6-12, 19-22, 25, 27 and 29-31 should be reversed.

Respectfully submitted,
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CLAIMS APPENDIX

1. An electrical current carrying conductor for long distance transmission of electrical current, said current carrying conductor comprising:

a) a relatively solid high tensile strength central load carrying core formed from a plurality of generally arranged component core members which abut together and which are each generally polygonally shaped in cross-section and when abutted together define a generally solid cylindrically shaped core each core member formed from a fiber reinforced composite material, said core being of sufficient cross-sectional size to support the tensile loading on the conductor when the conductor is suspended between support towers, wherein said conductor is capable of being wound around a drum; and

b) an outer highly conductive electrical current carrying sheath completely surrounding said load carrying core for carrying electrical current over said distance, wherein the plurality of component core members allow for the winding of the conductor around the drum.

2. The electrical current carrying conductor of Claim 1 further characterized in that said outer sheath is comprised of aluminum which is not alloyed to provide load carrying capacity.

3. The electrical current carrying conductor of Claim 1 further characterized in that said reinforced composite material is comprised of a plurality of aligned reinforcing fibers embedded in a thermoplastic composite matrix.

4. The electrical current carrying conductor of Claim 1 further characterized in that said core members are capable of being separated from one another for purposes of splicing.

5. (Canceled)

6. The electrical current carrying conductor of Claim 1 further characterized in that said, core members are generally triangular in cross-section.

7. A method of producing a long distance transmission current carrying conductor, said method comprising:

a) bringing a plurality of individual reinforced composite core sections together in abutting relationship to form a generally cylindrically shaped solid core, each core section having a generally polygonally shaped cross-section, wherein said core is of sufficient cross-sectional size to support the tensile loading on the conductor when the conductor is suspended between support towers;

b) locating on an outer cylindrically shaped surface of said core an outer highly conductive electrical current carrying conductor and winding the conductor around a drum.

8. The method for producing a long distance transmission current carrying conductor of Claim 7 further characterized in that said locating the current carrying conductor comprises winding individual wires of a highly conductive current carrying conductor about the central core.

9. The method for producing a long distance transmission current carrying conductor of Claim 8 further characterized in that said method comprises helically winding said wires about said core.

10. The method for producing a long distance transmission current carrying conductor of Claim 7 further characterized in that said outer surface is comprised of aluminum wires.

11. The method for producing a long distance transmission current carrying cable of Claim 7 further characterized in that said reinforced plastic composite sections are each comprised of a plurality of aligned reinforcing fibers embedded in a thermoplastic composite matrix.

12. The method for producing a long distance transmission current carrying conductor of Claim 7 further characterized in that said method comprises the bringing of the composite sections together about a fiber optic cable so that the current carrying conductor also includes a fiber optic cable extending through said core.

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

CLAIMS APPENDIX

18. (Canceled)

19. An electrical current carrying conductor for long distance transmission of electrical current, said current carrying conductor comprising:

a) a relatively solid high strength central load carrying core formed from a plurality of generally arranged component core members which abut together and which are each generally polygonally shaped in cross-section such that when abutted form a generally solid cylindrically shaped core, each member being formed of a fiber reinforced composite material said core being of sufficient cross-sectional size to support the tensile loading on the conductor when the conductor is suspended between support towers, and wherein the conductor is capable of being wound around a drum;

b) an outer highly conductive electrical current carrying sheath completely surrounding said load carrying core for carrying electrical current over said distance;

c) a central bore extending axially through said core; and

d) a fiber optic cable extending through the central bore allowing the conductor to carry electrical current and fiber optic cable signals with the same conductor, wherein the abutting component core members and the fiber optic cable define a cylindrical solid core.

20. The electrical current carrying conductor of Claim 19 further characterized in that said outer sheath is comprised of aluminum which is not alloyed to provide load carrying capacity.

21. The electrical current carrying conductor of Claim 20 further characterized in that said reinforced composite material is comprised of a plurality of aligned reinforcing fibers embedded in a thermoplastic composite matrix.

22. The electrical current carrying conductor of Claim 19 further characterized in that said core members are capable of being separated from one another for purposes of splicing.

23. (Canceled)

24. (Canceled)

25. The electrical current carrying conductor for long distance transmission of electrical current of Claim 1 further characterized in that said electrical current carrying sheath is formed of a non-alloyed aluminum.

26. (Canceled)

27. The electrical current carrying conductor for long distance transmission of electrical current of Claim 19 further characterized in that said electrical current carrying sheath is formed of a non-alloyed aluminum.

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. The electrical current carrying conductor of Claim 19, wherein the plurality of component core members allow for the winding of the conductor around the drum.